

REMARKS

Applicants thank the Examiner for reconsidering pending claims 1 and 4-23 and the pending rejections.

In the April 24, 2006 Office Action, the Examiner withdrew the rejections under 35 U.S.C. § 112, second paragraph. The Examiner, however, maintained the rejections under 35 U.S.C. § 112, first paragraph.

Rejections under 35 U.S.C. § 112: Enablement

The Examiner has maintained the rejection of claims 1 and 4-23 as allegedly lacking enablement for the full scope of the claimed subject matter. The Examiner contends that the specification, while enabling for a method of generating transgenic *Linum usitatissimum* (flax) plant cells using *Agrobacterium tumefaciens*, is allegedly not enabling for the full scope of the claims. The Examiner maintains that “the use of *Agrobacterium tumefaciens* transformation of flax hypocotyls were both required for high efficiency transformation and normal morphology” (Office Action page 3 and the November 22, 2005 Advisory Action). Applicants traverse.

In their Responses, filed June 28, 2005 and January 30, 2006, Applicants provided evidence (e.g., Bretagne-Sagnard et al. 1996, McHughen and Jordan 1989, Zhan et al. 1997, and Ling 1998) that flax transformation is not limited to transformation by *Agrobacterium tumefaciens*. Skilled artisans were, at the time this application was filed, successfully practicing several other methods of flax transformation.¹

The Examiner, however, finds Applicants’ arguments unpersuasive and argues that the evidence cited by Applicants is “used in the specification to demonstrate the difficulties of the state of the art at the time of filing” (Office Action, page 4). For example, the Examiner refers to the specification on page 2, lines 17-23:

¹ Although the Examiner has objected to Applicants’ reference to U.S. Patent 5,973,227, issued October 26, 1999, which describes transformation of flax hypocotyls by particle bombardment, Applicants note that the instant specification discusses the technique of particle bombardment and cites numerous articles that describe this approach for the transformation of plants generally. See page 6, lines 16-20, for example. In addition, U.S. Patents 5,610,042, issued in 1997, and 5,538,880, issued in 1996, describe particle bombardment for wheat and corn, respectively. Thus, U.S. Patent 5,973,227, which describes particle bombardment of flax, is available as post-filing support for the teachings of the instant specification.

Hence, the production of flax primary transformants, if at all possible, seemed to be genotype-dependent, time-consuming, and/or resulting initially in plants with aberrant morphology.

Thus, the technical problem underlying the present invention is to provide a reliable and efficient method for the generation and selection of stably transformed plants of the genus *Linum*.

The Examiner is mistaken. She is equating the step of introducing a recombinant DNA molecule into a flax cell, as recited in step (a) of claim 1, with the “technical problem” of generating and selecting stable flax transformants as recited in the passage above. The technical problem is not the introduction of DNA into a flax cell, which is easy and straightforward. Rather, the technical problem relates to the *selection* of stably transformed plants of the genus *Linum*. McHughen and Jordan, 1989 Plant Cell Reports (7): 611-614 (“McHughen and Jordan”) make both facts plain:

The production of transformed callus is *relatively easy* in most dicotyledonous species attempted, through the use of either Agrobacterium vectors, *electroporation, or other methods of DNA delivery into cells*. The subsequent recovery of transgenic shoots (and, ultimately, whole plants) from transformed callus is a different matter....” *emphasis added (see Introduction)*

Thus, McHughen and Jordan supports Applicants’ arguments that various methods of transformation were available at the time of filing and were specifically useful in the claimed invention. Further, McHughen and Jordan distinguishes between the step of transformation (the step pointed to by the Examiner), which the authors describe as “relatively easy” using various methods of DNA delivery, and the step of recovering transgenic shoots or plants, which is the technical problem the present invention overcomes. The claimed invention overcomes the technical problem of selecting stably transformed plants and of recovering the transgenic plants by teaching, for example, steps (a)-(e) as recited in claim 1.

The Examiner, contending that the use of *Agrobacterium tumefaciens* is required for flax transformation, argues that claims 1 and 4-23 do not contain all of the essential elements of the invention. As demonstrated above and in the June 2005 and January 2006 Responses, transformation with *Agrobacterium* is just one of many approaches for successfully and simply introducing DNA into flax cells. The use of *Agrobacterium* is, therefore, not an essential element of the claimed invention.

The Examiner also maintains that another essential element—one of the specific antibiotics recited in claim 4—is missing from the claims. Again, the Examiner is mistaken. The specification discloses that other antibiotics (e.g., hygromycin, see line 30 on page 13) may be used in the disclosed invention. Thus the claimed invention is not limited only to those antibiotics recited in claim 4 and on page 7 of the Office Action.

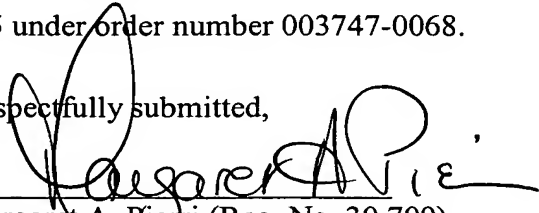
In view of the above remarks, Applicants request reconsideration and withdrawal of the rejections of claims 1 and 4-23 for alleged lack of enablement.

CONCLUSION

For at least the reasons presented above, Applicants request that the Examiner allow the pending claims. The Examiner may address any questions raised by this submission to the undersigned at 212-596-9000. In the accompanying Transmittal Form, Applicants have authorized that any fee required, in addition to the fee supplied with the Request for Extension of Time, be charged to Deposit Account No. 06-1075 under order number 003747-0068.

Dated: October 24, 2006

Respectfully submitted,

By 
Margaret A. Pierri (Reg. No. 30,709)

Fish & Neave Intellectual Property Group
ROPES & GRAY LLP
Customer No. 1473
1251 Avenue of the Americas
New York, New York 10020-1104
Tel.: (212) 596-9000
Fax: (212) 596-9090
Attorney For Applicants